

PRE FILTER
IN



PRE FILTER
OUT



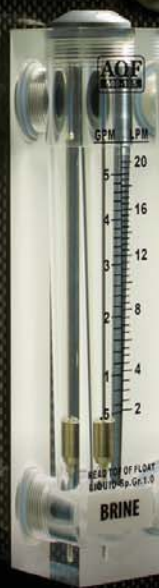
VESSEL
IN



VESSEL
OUT



RECIRC



Operating Manual

SuperLogic[®]

Professional Commercial Reverse Osmosis



SuperLogic 1500 Installation and Operation Manual



- **SuperLogic®** 1,500 gpd system.
- High flow, low energy membrane
- **Automated** TDS controller and monitor with simultaneous feed and product readout
- Carbon fiber face plate
- Rinsable sediment and **Eco-Green Carbon** block prefiltration
- Anti-scalant cartridge for use in hard water applications
- Brine and product flowmeters
- Prefilter In/Out gauges
- Membrane In/Out gauges
- Stainless steel waste water recirculation valve
- Stainless steel heavy duty commercial pump
- Low pressure cut-off switch
- Non-petroleum bioplastic fittings
- Manufactured in the USA
- All systems QC tested and verified

Introduction

Congratulations on the purchase of your SuperLogic commercial reverse osmosis system. This is professional water purification equipment which, with proper care and maintenance can last you for many years.

Feed water conditions can vary drastically as well as fluctuate at your specific site. In order retain your warranty, the provided operating log must be maintained and available for our review.

Prior to starting up the SuperLogic reverse osmosis systems this user manual must be fully read and understood. Keep this manual in a safe place for future reference. A copy of this manual can be found at www.hydrologicsystems.com.

System Specifications

HL Model Number	31043
Capacity (gpd)¹	1,500
Membrane Type	4" x 21" high flow, low energy, thin-film
Number of Membranes	1
Membrane TDS Rejection¹	96%+
Prefilters	10" rinsable sediment (5 micron) 10" Green Carbon block (10 micron)
Pretreatment	Anti-scalant cartridge
Pump	325 gph
Motor	3/4 Hp
Minimum Feed (GPM)	4 GPM
Feed Connection	Female garden hose
Brine Connection	3/8" tube
Product Connection	3/8" tube
Dimensions	18"W x 26"D x 30"H
Weight	100 lbs

¹Based on membrane performance after 24 hours, 77°F (25°C), 500 ppm TDS, 120 psi and 66% recovery. Membrane performance may vary ±15%.

Feed Water and Operating Specifications

Important Note: Feed water quality has a great effect on the performance of your reverse osmosis. It is very important to meet the minimum feed water requirements. Failure to do so will cause the membranes to foul and void the warranty.

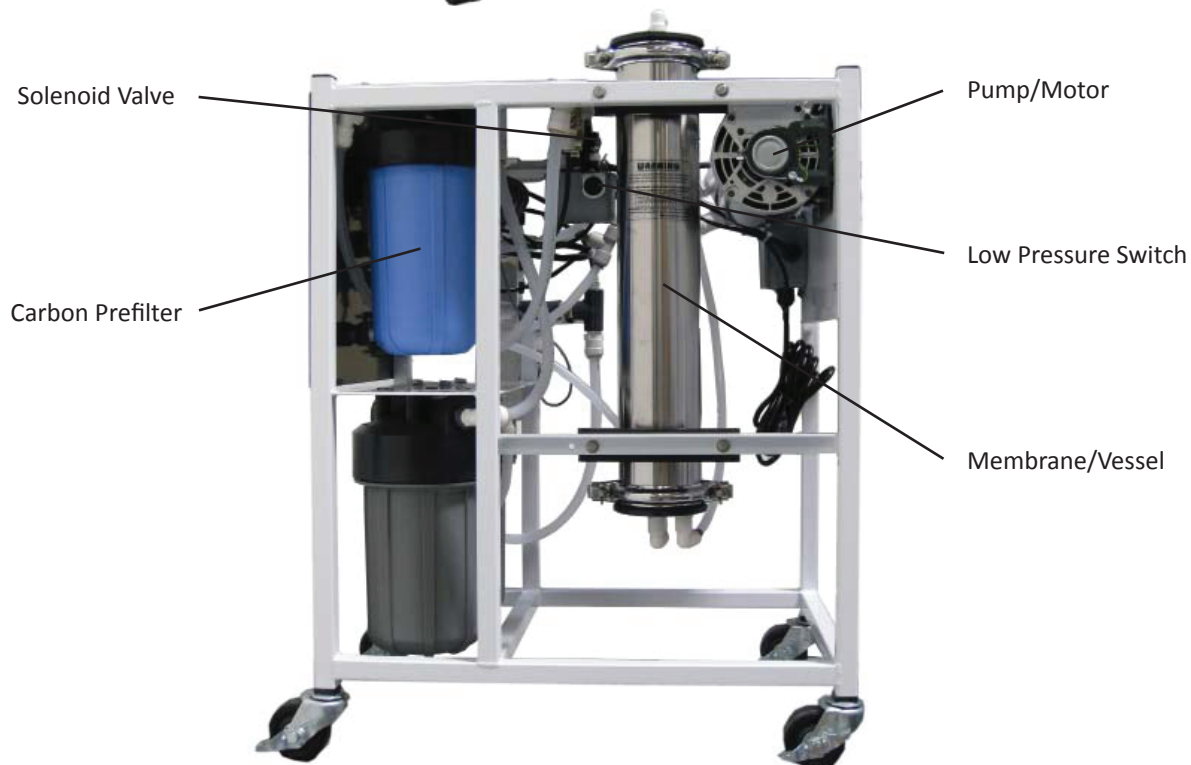
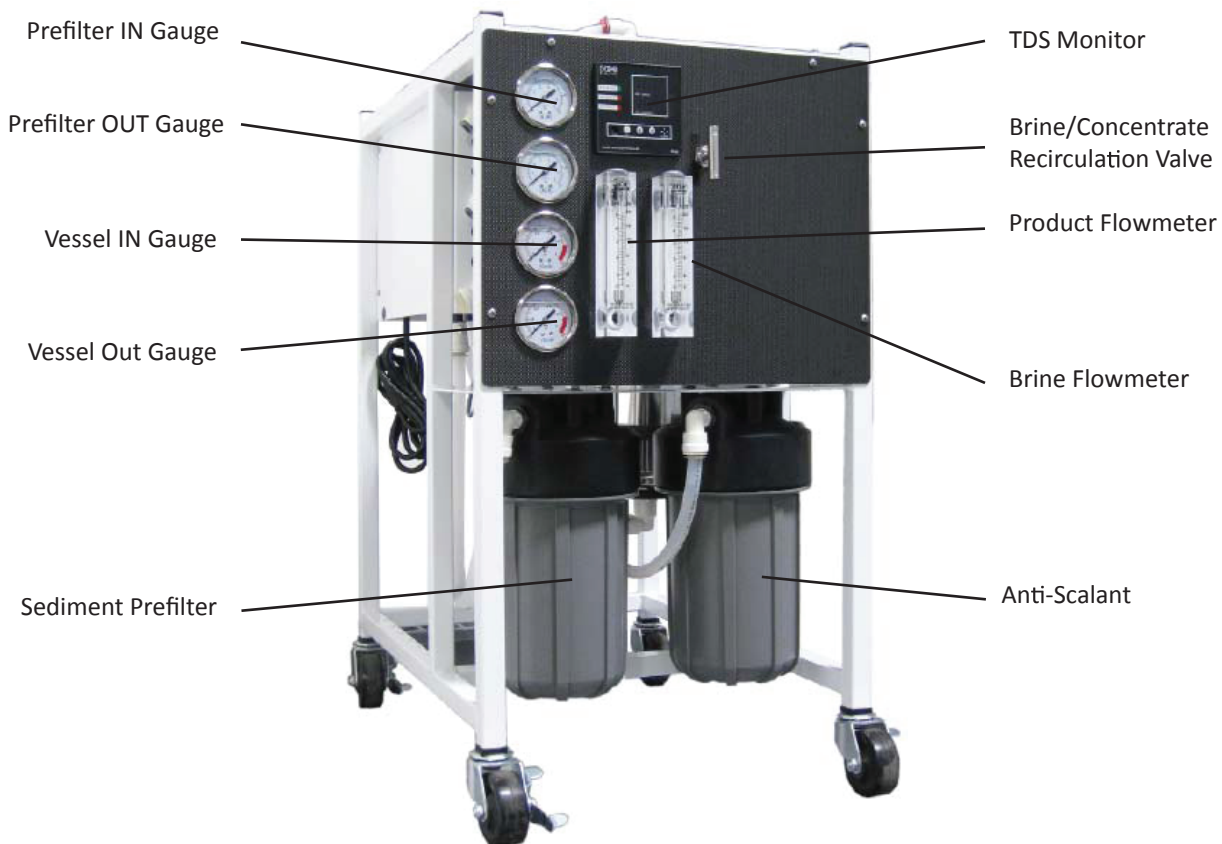
Feed Pressure	40-80 psi
Max Operating Pressure	150 psi
Temperature	40° - 100°F
Max Chlorine (continuous)	<0.3 ppm
Max Total Dissolved Solids	5,000 ppm
Hardness	<15 grains
Silt Density Index	<5 SDI
Turbidity	<1 NTU
pH Range	2-11
Silica	< 1 ppm
Iron, Hydrogen Sulfide or Manganese	0 ppm

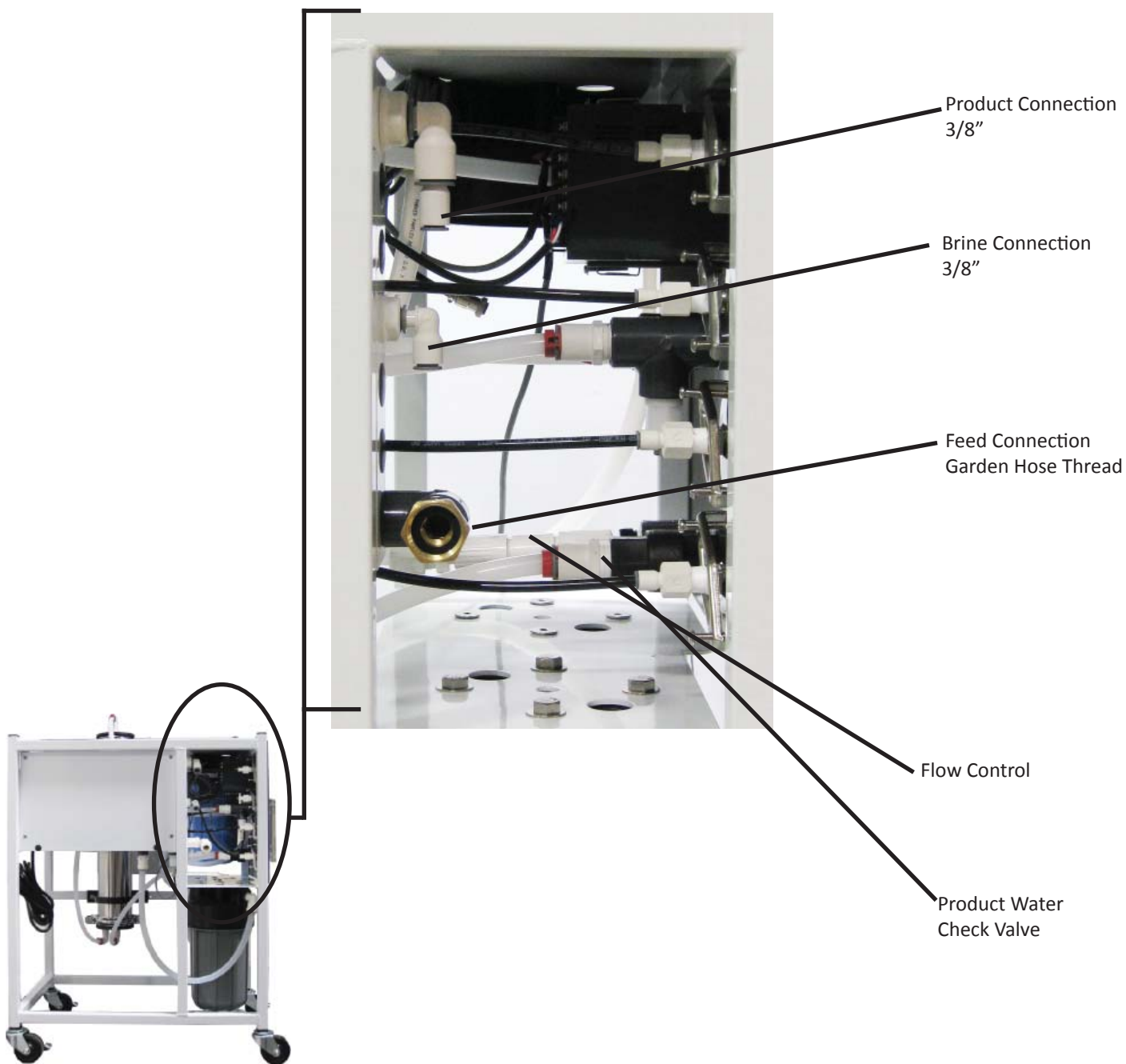
Please Note:

Higher TDS and/or lower temperatures will reduce the systems performance

Detailed water analysis available. All levels of pre and post filtration available to match source water.

Call HydroLogic directly for assistance (888) 426.5644





Anti-Scalant Cartridge: Allows the system to be operated at a 2:1 product to brine recovery ratio by preventing membrane fouling due to hardness in the feed water. The system can also be specified for a 4:1 product to brine ratio if a proper water softener or anti scalant system is installed prior to the SuperLogic. Contact us for details @ (888) 426-5644.

Brine/Concentrate Recirculation Valve: A needle valve that controls the amount of brine from the membrane to be recirculated back into the feed stream. This feature allows for higher recovery rates (lower waste water ratios). Additionally, adjustment of this valve regulates the pump discharge pressure.

Filter IN/OUT Pressure Gauges: Gauges that display the water pressure before and after the sediment prefilter. Used to observe the pressure drop through the sediment prefilter (a means of detecting filter clogging or loading).

Flow Control: A fixed orifice that controls the amount of water flowing across the membrane to drain. This controls the ratio for product water to waste water and either comes at a 4:1 or 2:1 ratio depending on how the system was specified.

Low Pressure Switch: An electrical switch that shuts off the unit in the event of low feed water pressure. This is used as a pump protection device. This is factory set to cut off at 12 psi (0.8 bar).

Membrane/Vessel (Desalinators): Separates dissolved solids from the feed water. This assembly consists of a stainless steel pressure vessel that houses the thin-film, reverse osmosis (RO) membrane.

Prefilter, Carbon: A 10 micron Eco-Green carbon block prefilter that removes chlorine prior to entering the membrane.

Prefilter, Sediment: A pleated filter that prevents undissolved particles larger than 5 micron, from entering the system.

Product Water Check Valve: A one-way valve that prevents pressurized product water from flowing back into the desalinators (and possibly damaging the membrane) when the system is off.

Pump/Motor: The rotary positive displacement pump boosts water pressure in the desalinators up to 150 psi (10.3 bar) for low energy membranes to ensure high solids rejection and high flow rates.

Solenoid Valve: Electrically operated valve that prevents water from flowing through the system when it is not in operation.

Vessel Pressure IN/OUT Gauges: Gauges that display the operating pressure before and after the RO membrane (used to observe drop in membrane pressure indicating fouling or clogging).

TDS Monitor: Simultaneously reports the feed and product water TDS in ppm. Includes optional alarm function. A low PPM limit can be programmed so the system shuts down if PPM's go above set point.

Pre-Installation Procedures

PLEASE READ CAREFULLY. FAILURE TO FOLLOW THESE PROCEDURES CAN RESULT IN DAMAGE TO YOUR SYSTEM AND VOID YOUR WARRANTY.

Packaging

Upon delivery, inspect packaging and report any damage to your carrier immediately. After unpacking the system, inspect it carefully for signs of damage. All damage claims should be made to the delivery carrier.

Operating Parameters

The SuperLogic 1500 system may only be used on potable water. The user must be sure that water to be treated is both microbiologically safe and non-toxic. Ensure that the operating parameters outlined on page 3 are met at the installation site. Items of most importance are TDS, feed water pressure, flow rate, chlorine level and temperature range. A water analysis is helpful in determining if any pre-treatment is needed. If your water analysis shows levels of substances in excess of the maximums, contact HydroLogic for pre-treatment recommendations. Contact HydroLogic to inquire about a detailed water analysis.

Installation/Start up Procedure

PLEASE READ CAREFULLY. FAILURE TO FOLLOW THESE PROCEDURES CAN RESULT IN DAMAGE TO YOUR SYSTEM AND VOID YOUR WARRANTY.

Location

Locate the system where it will be protected from harsh conditions such as rain, snow, direct sunlight and extreme temperatures (both hot and cold). The SuperLogic 1500 system can be located just about anywhere there is a water supply and electrical outlet. This system is equipped with casters and may be rolled to different locations for operation. Keep in mind, however, that the system should be out of normal traffic patterns yet accessible for daily monitoring and service.

Plumbing

(Figure 1 - Flow Diagram)

Always abide by local plumbing codes when installing the system.

Water Supply Connection

Connect feed water supply line to the female garden hose connector. Many other inlet fitting options are available through HydroLogic. If the supply water is being drawn from a non-pressurized source (gravity feed), contact HydroLogic for additional information. Minimum inlet pressure is 40 psi. If your inlet psi is below 40 contact HydroLogic for further information.

Drain Connection

Connect a 3/8" line from the quick connect elbow marked DRAIN to an appropriate drain point. A quick connect drain saddle is available as an option from HydroLogic and can be plumbed directly into the main train of a sink. Be sure to check your local plumbing codes to see if an air gap between the system and the drain is required.

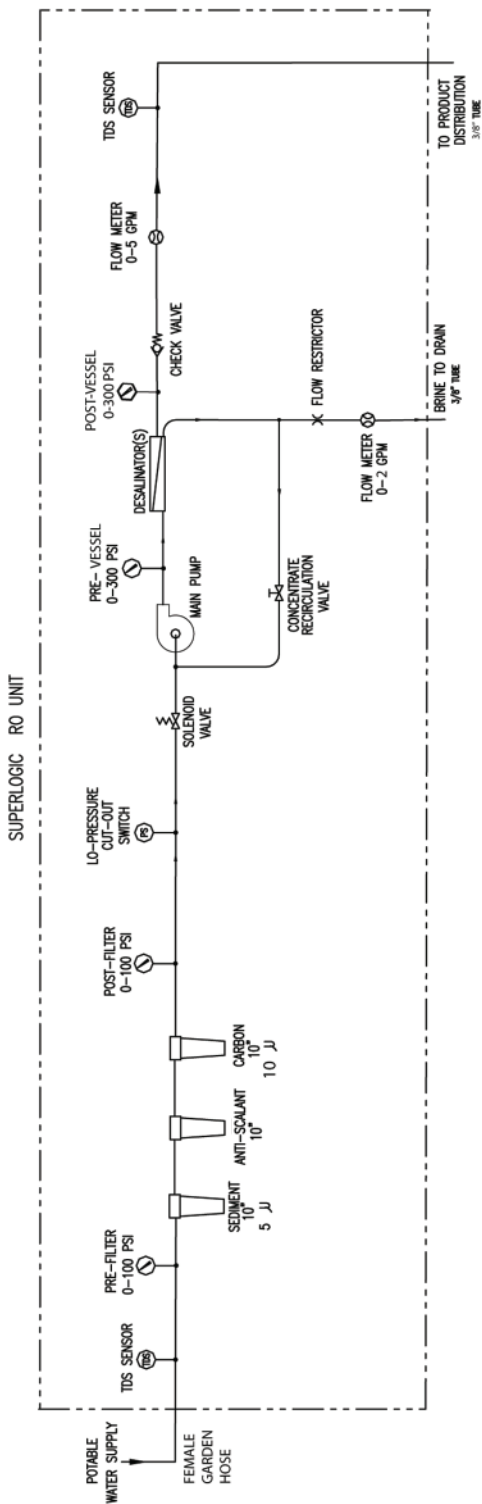
Product Connection

The product water connection to the storage tank should not be made until the system is flushed and tested as outlined below.

Tank Connection (For Non-Pressurized Tanks Only)

When using a non-pressurized storage tank, connect the 3/8" tubing marked PRODUCT to the tank. Use an optional electronic float switch to shut down the system when the tank is full and start the system when water level is low. Quick connect bulk head fittings are available to connect the product line to your tank. Contact HydroLogic for this and other options available.

Figure 1 - Flow Diagram



Electrical

(Figure 2 - Electrical Diagram)

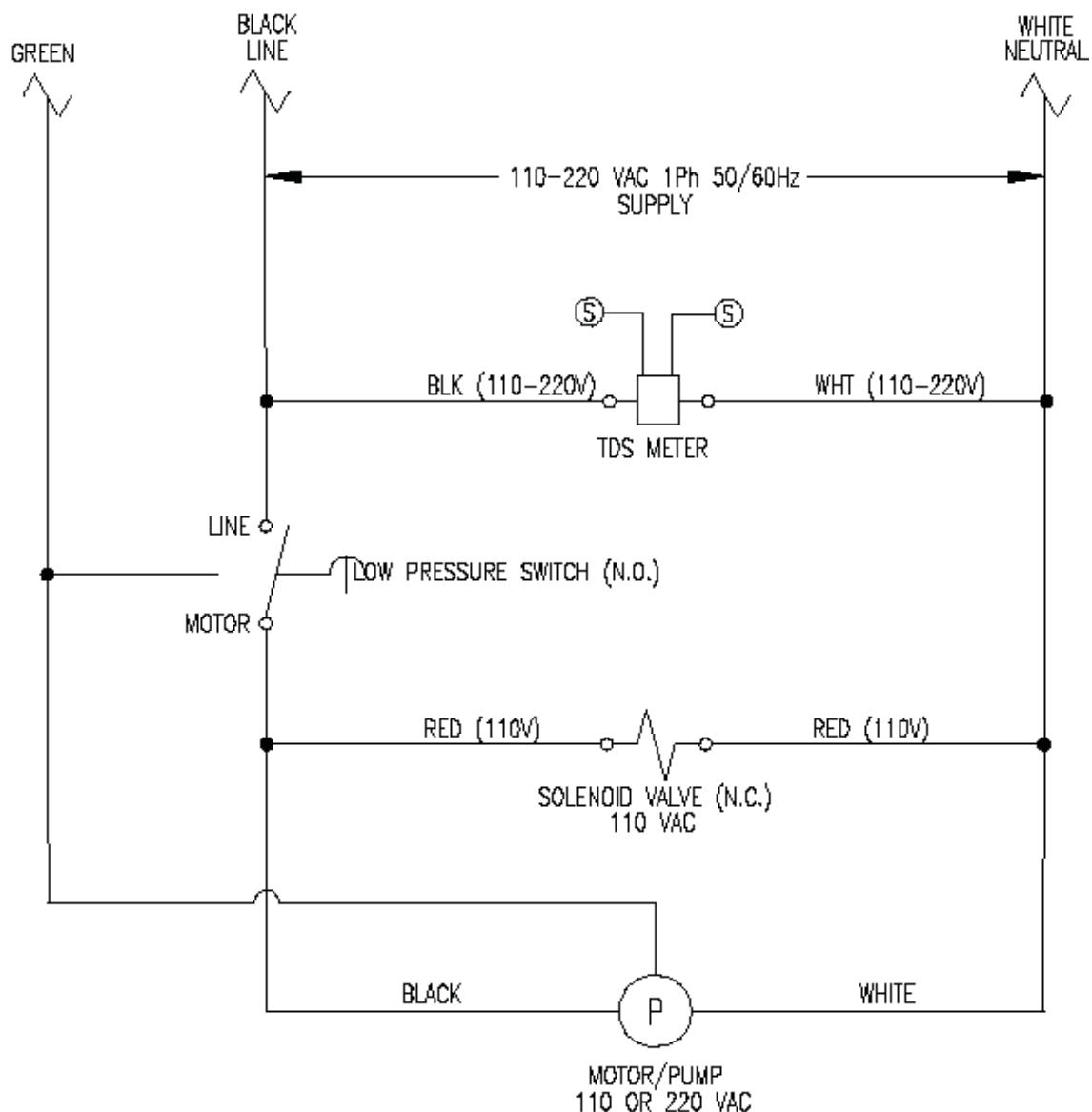
WARNING! THE SYSTEM CAN START AT ANY TIME WHEN POWER IS CONNECTED. DO NOT CONNECT POWER UNTIL THE SYSTEM IS COMPLETELY INSTALLED AND READY TO RUN.

The SuperLogic 1500 system is built with a standard 115v three-prong plug. Be sure the receptacle you use is on a circuit that has a Ground Fault Interrupter (GFCI) and has sufficient capacity for the operating current as listed in the system specifications. It is recommended that the system be installed on a dedicated circuit to prevent overloading on system start-up.

Optional External Float Switch Wiring (For non-pressurized tanks only)

A piggy-back connector is supplied with the system. Please see additional installation information included with the float switch.

Figure 2 - Electrical Diagram



System Flush and Performance Verification

Although SuperLogic 1500 systems are fully tested at the factory prior to shipping, it is recommended to flush and verify your system's performance on-site.

Flushing

New membranes are shipped with a preservative that needs to be flushed out before use. Run the product line to drain while flushing the system.

- Fully open the brine/concentrate recirculation valve by turning the knob counterclockwise.
- Turn on water supply to the unit and check for leaks at the pre filter housings and the feed connections.
- Plug the system into a compatible electrical outlet. CAUTION! THE SYSTEM WILL START and rapidly cycle, starting and stopping until the membrane vessels are full of water and water starts flowing out of the product and brine ports.
- After the system has run for a few minutes to clear any air, turn the brine/concentrate recirculation valve clockwise until the "vessel in" pressure gauge reads 120 psi (8.3 bar).
- Allow the system to flush for one hour with all water discharged to drain. Periodically check for leaks and check the "vessel in" pressure gauge. It is likely that the vessel pressure will drift from 120 psi (8.3 bar) during the flushing. If it does, turn brine/concentrate recirculation valve clockwise to increase pressure and counterclockwise to decrease pressure.
- The recirculation valve will need to be adjusted when membranes are replaced or if there are seasonal changes in water temperature that cause the pump pressure to drift by 10 psi or more.
- The 120 psi pressure provides the best compromise of membrane performance and lifetime while maintaining pump and motor longevity. The system can operate above 120 psi and up to a maximum of 150 psi. Inlet water temperature and TDS can effect the flow rate of purified water and in situations with low water temperatures and/or high TDS increased pressure may be necessary to achieve desired flow rates of purified water.

*** DO NOT LET SYSTEM PRESSURE RISE ABOVE 150 PSI (10.3 BAR) AS DAMAGE TO THE SYSTEM CAN OCCUR***

Performance Verification

Factory test data is supplied with the system. To ensure optimal performance, on-site data should be taken and compared to the factory test data. This data should be taken after the system has been flushed for one hour. Some deviations may be seen due to differences in feed water TDS and temperature between the site and factory. If you have already connected the product line to the tank, you will need to disconnect it to take product samples.

Flow Tests

Determine the flow rates for both product and brine. Put the product line into a container and measure the volume of water that flows into it in one minute. Repeat the process with the brine (drain) line. These values should be in either gallons per minute or milliliters per minute. Product flow rates (at 77°F, 25°C) should be within 15% of the production rates given in the system specifications.

Product to Brine/Concentrate Ratio

Compute the product to brine ratio by dividing the brine flow rate by the product flow rate. This ratio should be either 4:1 or 2:1 ± 30%. The 30% variation can be due to inlet water temperature being above or below 77 degrees fahrenheit as well as inlet TDS being above or below 500 PPM.

Total Dissolved Solids (TDS) rejection

Using the TDS monitor, note the TDS in both the feed water and the product water.

Calculate percent rejection using the formula: $(\text{Feed TDS} - \text{Product TDS}) \div (\text{Feed TDS}) \times 100 = \% \text{ Rejection}$

Rejection should be 85% or better. For example, where the feed TDS is 600 and the product TDS is 24, the percent rejection is: $(600 - 24) \div 600 \times 100 = 96\%$

Low Pressure Switch Test

While the system is running, shut off the water supply to the system. The system should shut off. If the system does not shut off after ten seconds, either unplug the system or restore the water supply to the system. Call HydroLogic to diagnose problem.

DO NOT LET THE SYSTEM RUN WITHOUT THE WATER SUPPLY TURNED ON. PUMP DAMAGE WILL OCCUR.

Tank Connection

Make the tank connection as outlined on page 8.

Optional Float Switch Test (for non-pressurized tanks)

The system should run when the float is hanging down by the power cord. Tilt float up so the power cord is at the bottom of the float. The unit should shut off. If unit does not shut off, re-check installation procedure.

Operation and Maintenance

SuperLogic 1500 systems are designed for simple operation with little user intervention. We recommend keeping accurate performance records and following a regular preventative maintenance schedule to maximize the life of your system.

Daily System Checks

Your water supply pressure can vary from time to time. This can also affect your system operating pressure. Check and adjust your vessel pressure daily to ensure maximum water production rates and quality. Check both the prefilter in pressure gauge and pre filter out pressure gauge. Under normal conditions, there should be a 3-5 psi difference between the two gauges. When the difference reaches 10 psi it is recommended to change your pre-filters.

Monthly System Checks

In addition to the daily checks, it is recommended to repeat the procedure in the section on Performance Verification and record all data on a performance record sheet.

Semi-Annual Service

It is recommended to change both sediment and carbon filter cartridges at least every six months. Carbon cartridges should be changed more often if bad taste and/or odor becomes evident. Sediment cartridge should be changed more often if water supply pressure and filter pressure gauges differ by 10 psi or more.

Peripheral Equipment

Peripheral equipment such as tanks also have periodic maintenance requirements. It is essential to maintain these as they can have a dramatic effect on the performance of your system. Refer to their specific manuals for proper maintenance procedures.

Filter/Membrane Replacement Schedule

Sediment pre-filter - The 5 micron sediment filter is pleated and can be rinsed with a garden hose. You can rinse as often as needed but it is recommended to replace this filter every 6 months. If you observe a 10 psi drop in the pre-filter out gauge from the psi in the pre-filter in gauge this indicates a clog in the sediment filter and you should either rinse it or replace it.

Carbon Pre-Filter - The 10 micron carbon filter is rated at 2 PPM chlorine removal and should be changed according to the schedule below:

@ 4:1 ratio replace every 25,000 gallons of product water

@ 2:1 ratio replace every 15,000 gallons of product water

Anti-Scale Pre-Filter - Should be replace every time the carbon filter is replaced

Membrane - Upon startup the vessel in gauge should read 120 while the vessel out gauge will always read approximately 10 psi less or 110 psi. When the vessel out gauge reads 20 psi lower than the vessel in gauge, or 100 psi, this indicates when to change your membrane.

Limited Warranty

This Limited Warranty extends to the original purchaser of the unit. This warranty covers all parts and factory labor needed to repair any manufacturer supplied item that proves to be defective material, workmanship or factory preparation. The above-mentioned warranty applies for the first full calendar year from the date of purchase. These defective items are subject to the following exclusions: membranes, filters, O-rings, and all other parts or components that require regular replacement as a result of ordinary usage.

Disclaimers: This Warranty applies only if the unit is installed and used in compliance with the instructions enclosed with the unit.

The Warranty does not cover any unauthorized parts or parts not included on the original unit. This Warranty does not cover the costs of repairs or adjustments to the unit that may be needed because of the use of improper parts, equipment or materials. This Warranty does not cover repairs required due to use of unauthorized parts, unauthorized alterations of the unit, failure of a unit caused by such alterations or by unauthorized repairs.

The Warranty does not cover malfunctions of the unit due to tampering, misuse, alteration, lack of regular maintenance, misapplication, fouling due to hydrogen sulfide or iron, scaling from excessive hardness, or excessive membrane hydrolysis due to chlorine levels in excess of 1.0 mg/L, or operating at too high a recovery. In addition, damage to the unit due to fire, accident, negligence, act of god, or events beyond the control of the manufacturer are not covered by this warranty.

The manufacturer warrants the membranes per the original manufacturers warranty. These warranties generally cover faulty material and workmanship for anywhere from one to three years. Membrane fouling is not covered.

The manufacturer warrants all items supplied by outside vendors, per the manufacturers warranties. These warranties generally cover faulty material and workmanship for one year.

Incidental and Consequential Damages: The manufacturer does not assume responsibility for payment of incidental damages as a result of the failure of this unit to comply with express or implied warranties, such as lost time, inconvenience, damage to personal property, loss of revenue, commercial losses, postage, travel, telephone expenditures, or other losses of this nature. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion may not apply to you.

Owner's Warranty Responsibilities: Under the provisions of this Warranty, the owner is expected to perform timely maintenance, as described in this Manual. Neglect, improper maintenance, abuse, or unapproved modifications may invalidate the Warranty. Should your unit develop a defect or otherwise fail to perform in accordance with this warranty, you should contact HydroLogic.

Implied Warranties: Implied at-law warranties of merchantability and fitness for a particular purpose shall terminate on the date one year after the date of purchase. Note: some states do not allow limitations on how an implied warranty lasts, so the above limitations may not apply to you.

Other Rights This Warranty gives you specific legal rights and you may also have other rights that vary from state to state.

Returned Goods Authorization In order to process a return, a Returned Goods Authorization (RGA) number will be assigned. Include the RGA number with an explanation of the defect with the item being returned. Items returned under the RGA process will be reviewed and/or forwarded to the original manufacturer for evaluation. Items returned must be sent prepaid.

pure water's not magic...
it's logic.

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Earth Friendly Company

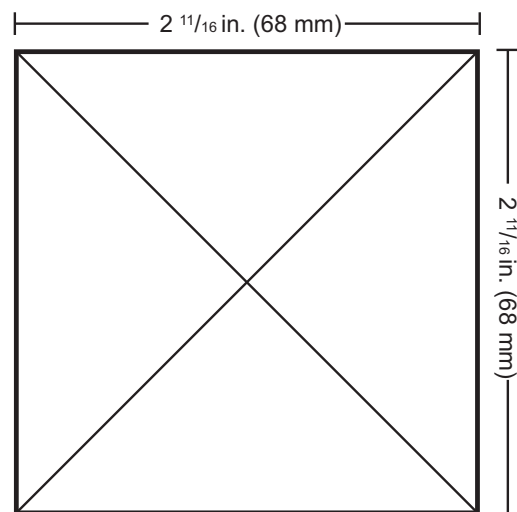


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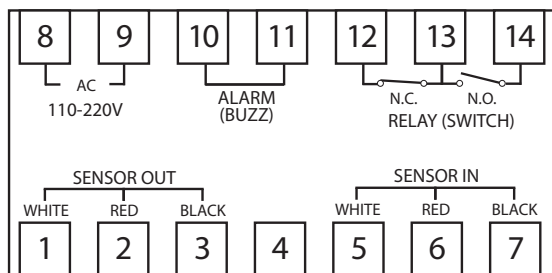
PANEL CUT-OUT DIAGRAM



1. Using a knife, cut the diagram out (cut on the outer part of the line).
2. Align the cut-out to your panel and draw cut marks.
3. Cut the hole in the panel to the precise dimensions of the cut-out:
2-11/16 in. x 2-11/16 in. (68 mm x 68 mm)

→ See the installation section for complete instructions.

CONTACT DIAGRAM



USER'S GUIDE



PS-200 PANEL MOUNT DUAL TDS CONTROLLER/MONITOR



Thank you for purchasing HM Digital's PS-200. The PS-200 is a panel mount total dissolved solids (TDS) controller that monitors and controls levels of TDS in water. The controller has a maximum set point to help maintain a limit of TDS allowed in the product water, as well as a second sensor to monitor the TDS level of the feed water. If the TDS level rises to the set point, the controller will activate a warning light, sound an alarm (optional) and switch the dry contact position from the normal position (to operate a valve, pump, etc.). Once the TDS level drops below the set point, this will deactivate the light and alarm and switch the contacts back to the normal position (normally open or closed). NOTE: The IN mode & sensor does not have an alarm nor control set point. It is a monitor only.

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CONTACT INFO

If you have any problems or questions regarding your controller, please contact HM Digital, Inc.

HM Digital, Inc.
5819 Uplander Way
Culver City, CA 90230
U.S.A

info@hmdigital.com
www.tdsmeter.com
1-800-383-2777

BOX CONTENTS

- | | | |
|-----------------------|-----------------------------|----------------------|
| 1. Controller | 3. Two sensor cables (grey) | 5. Mounting brackets |
| 2. Two sensors (SP-1) | 4. Power cord (black) | 6. U.S. plug adapter |

SPECIFICATIONS

TDS Range: 0 - 999 ppm (mg/L)

Resolution: 1 ppm

Accuracy: $\pm 2\%$ (of the reading)

Temperature Compensation: Automatic (ATC) (1-60°C)

Calibration: Manual by trimmer pot calibration screw

Set-Point: Single point, controlled by on-screen up/down buttons (to any point within the range)

Set-Point Relay: single, isolated, 2A, Max. 220V, resistive load 100,000 strokes

Relay Control (out sensor only): The unit will open or close a circuit via dry contacts when the ppm level of the OUT sensor (aka product water) reaches or exceeds the control setting (simple switch). It can be used to control a pump, solenoid valve or other device.

Relay Voltage: 5V (the connected device needs its own power source)

Alarm: Optional steady beep (set by user)

Probe: ½" NPTF bushing

Cable Length: 3 meter (9.8 ft) shielded cable

Display: Bright tri-color L.E.D.

Power Supply: 110V/230V, $\pm 10\%$ Vac; 50/60Hz

Enclosure: Front and back with ABS

Environment: -10 to 50°C (4 to 122°F); RH max 95% non-condensing

Dimensions: 7.2 x 7.2 x 10.2 cm (2.8 x 2.8 x 4 in.)

Monitor Weight: 476 grams (1 lb 0.8 oz)

WARRANTY

ONE YEAR LIMITED WARRANTY

The PS-200, including the controller and both sensors, is warranted by HM Digital, Inc. ("the Company") to the purchaser against defective materials and workmanship for one (1) year from the date of purchase.

What is covered: Repair parts and labor, or replacement at the Company's option. Transportation charges for repaired or new product to be returned to the purchaser.

What is not covered: Transportation charges for the defective product to be sent to the Company. Any consequential damages, incidental damages, or incidental expenses, including damages to property. This includes damages from abuse or improper maintenance such as tampering, wear and tear, water damage, or any other physical damage. The Company's products are not waterproof and should not be fully submerged in water. Products with any evidence of such damage will not be repaired or replaced. See additional note below.

How to obtain warranty performance: Attach to the product your name, address, description of problem, phone number, and proof of date of purchase, package and return to:

HM Digital, Inc.
ATTN: Returns
5819 Uplander Way
Culver City, CA 90230
U.S.A.

Implied Warranties: Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to five years from date of purchase. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. To the extent any provision of this warranty is prohibited by federal and state law and cannot be preempted, it shall not be applicable. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

NOTE: Warranties are product-specific. Third-party products and products deemed by HM Digital as "accessories" are not covered under warranty. Third-party products and accessories include, but are not limited to, batteries, fuses, mounting brackets, plug adaptors and fittings.

INSTALLATION INSTRUCTIONS

IMPORTANT: *Double-check your contacts prior to connecting the controller to a power source. Incorrect connections could result in shorting out the unit.*

1. Remove the contents from the box.
2. Insert the controller into the panel. A square hole must be cut into the panel with dimensions of 2-11/16 in. x 2-11/16 in. (68 mm x 68 mm). Page 8 includes a cut-out diagram.
3. Mount the controller to the panel by inserting the mounting brackets into the grooves on the bottom and top of the controller. Fasten the brackets with the included screws.
4. View the contact diagram on the side of the controller (also on page 8).
5. Do NOT connect to a power source yet! Connect the black power cord to the contacts #8 & #9 (110 V - 230V). It does not matter which color wire is connected to the contacts. Screw in tight with a Phillips head screwdriver. (Note – If in the U.S. (or a country that uses Type A or B plugs/sockets), connect the included plug adapter to the power cord).
6. If using a pump, valve, etc., connect a relay wire (not included) to contacts #13 and #14 for a normally open (N.O.) position OR to contacts #12 and #13 for a normally closed (N.C.) position.
7. Connect a gray sensor cable by attaching the white wire to contact #1, the red to #2, and the black to #3.
8. Connect the second sensor cable by attaching the white wire to contact #5, the red to #6, and the black to #7. The cables are identical and can be swapped.
9. Align the pins of each sensor to each cable and attach. Screw the tightening ring closed. The sensors are identical and can be swapped. Note which sensor is now the IN sensor and which is the OUT sensor.
10. Insert each sensor electrode into a female ½" NPTF threaded fitting.
11. Attach the fitting connected to the OUT sensor to the product water.
12. Attach the fitting connected to the IN sensor to the feed water.
13. Ensure the orientation of the sensor is perpendicular to the flow of the water. Water should flow equally over both pins. (If using a T, if you look through the top of the T, you should see both pins equally side-by-side. If using the sensor in a tank, ensure that there are no air bubbles trapped between the pins or in a fitting.)
14. To DISCONNECT the audible alarm, disconnect the blue wire from contacts #10 and #11.
15. Plug the power cord into an electrical outlet. The controller does not have a power switch and will automatically power on when the power is connected.

USAGE INSTRUCTIONS

1. The controller will turn on when the power cord is plugged into an electrical outlet.
2. Open the cover on the front of the controller by gently pulling down.
3. There is only one display for both the IN mode (feed water) and OUT mode (product water). The OUT mode is the default. To view the TDS level of the feed water, press the "IN MODE" button. The display will switch to the feed water. NOTE: The display will automatically switch back to the product water TDS after five seconds. To view the feed water display for longer, press and hold the "IN MODE" button.
4. To turn off the controller, unplug it from the electrical outlet.

USAGE INSTRUCTIONS (continued)

Setting the Control Set Point

1. To set the control set point (to activate a device via the relay), press the SET button once. The EC reading will switch to a flashing number (the current set point).
2. Press the UP or DOWN buttons until the desired set point is reached. Pressing once will advance the reading by a single digit. Press and hold the button to advance the reading quickly.
3. Press the SET button again. This will save the set point to memory.
4. If the EC level reaches the saved set point, the controller will switch the contacts from the normal position (either normally open or normally closed), thereby operating the pump, solenoid valve, or other device attached to contacts #12 & 13 or #13 & 14.
5. Once the EC level falls below the set point, the contacts will switch back to the normal position.
6. The alarm (if connected) will sound continuously while the EC level is over the set point. The only way to turn it off is by lowering the EC level below the set point or disconnecting the blue wire from contacts #5 and #11.

Calibration

Your controller was factory calibrated to 342 ppm (NaCl). This level is suitable for most tap water/filtered water applications, so it is ready to use out of the box. However, you may need to re-calibrate based on your needs, as well as from time-to-time to ensure best results.

To calibrate:

1. Obtain a certified calibration solution that is correct for your needs. The calibration solution should be NaCl. HM Digital's 342 ppm NaCl is recommended.
2. Calibrate to the OUT sensor. This will calibrate both sensors simultaneously.
3. Check the controller against the calibration solution. Prior to inserting the sensor into the calibration solution, be sure the sensor is dry and free of any TDS residue. If the reading on the controller does not match the calibration value, you will need to re-calibrate. If using a fitting, calibrate with the fitting on the sensor. (See step 5 for additional information regarding the calibration value.)
4. For better accuracy, calibrate to a flowing solution. If this is not possible, you can calibrate to a still solution. Ensure the fitting is completely filled with solution and there are no air bubbles. This step is critical for proper calibration.
5. If the reading on the controller does not match the solution, adjust the reading up or down by gently turning the trimmer pot calibration screw on the face of the unit (marked as "ADJUST") clockwise or counterclockwise to raise or lower the reading.
6. If calibrating to a still (not flowing) solution, calibrate to 3% above the level of the calibration solution. This will accommodate for the lack of flowing water, which the controller is programmed for. For example, if the calibration solution is 342 ppm, adjust the screw until it reads 352 ppm. If you are calibrating to a flowing solution, calibrate to the level of the solution.
7. Gently release the screwdriver from the trimmer pot.
8. Your controller is now calibrated. There is no need to do anything else.

TROUBLESHOOTING

Problem	Potential Solution(s)
The controller will not power on.	1. Check to ensure the connections are correct (double-check 110V vs. 220V). 2. Check to ensure the power cable is plugged in.
Incorrect readings.	1. Try to recalibrate the controller. Note that the calibration should be done with a fitting on (if using a fitting). 2. Check for interference caused by other machinery or electronics (near the controller or cables).
The relay control does not work.	1. Double-check the connections for contacts #12, 13 & 14. 2. Make sure that the set point is properly set.
The display shows "Err".	1. The TDS level of the water is out of the controller's range. 2. The sensor is not connected. 3. The sensor is dirty or damaged.
The display shows the feed water TDS level, instead of the product.	1. The sensors are reversed. Connect the sensor for the feed water to the IN sensor contacts, and the sensor for the product water to the IN sensor contacts.

If troubleshooting does not solve the problem, please contact HM Digital for assistance. If your controller is still under warranty, please return the controller to HM Digital for repair or replacement (see page 6).

Cleaning

To clean the sensor electrodes, use rubbing alcohol and a cotton swab. Lightly clean the electrodes. Rinse with DI, RO or distilled water. Air dry.

Sensor Replacement

If your sensor has been damaged, you can purchase a new one (model SP-1) without the need to purchase a new controller.

Contact your authorized HM Digital distributor for a replacement sensor. If you cannot locate an HM Digital distributor, contact HM Digital at info@hmdigital.com